

## Different types of deforestation can affect virus transmission

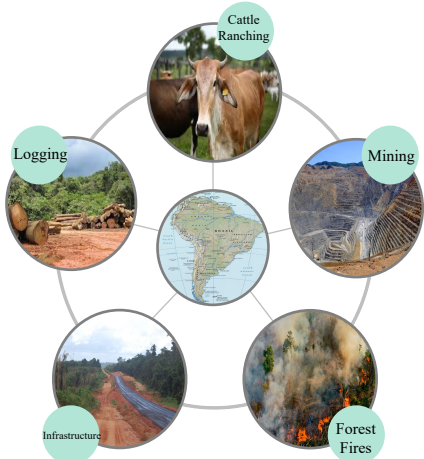


Figure 1. Different types of deforestation affect South America, such as Cattle Ranching, Logging, Mining, Infrastructure, and Forest Fires.

This study analyzes how the amount of deforestation occurring in a country relates to the size of the country.

1. Data for countries in South America was taken from the Global Forest Watch database  
- Looked at primary forest loss and tree cover extent data
2. R Programming was used to search for correlation between area of a country and amount of deforestation occurring.
3. Data from the World Health Organization on Yellow Fever was analyzed for correlation with deforestation occurrence.



Figure 3. Yellow Fever Transmission in South America shows that transmission may be caused by landform.

## Virus transmission occurs in areas with little deforestation occurring

The proportion of forest that is being deforested in a country is not directly related to the amount of viral transmission occurring in a country.

- Paraguay shows the largest amount of deforestation occurring, but not the largest amount of virus transmission (Fig 2D). Brazil has relatively low deforestation compared to the rest of the continent, but high transmission.
- Deforestation in the Amazon has been linked to vector-borne malaria, Lyme disease, and yellow fever transmission (Kalbus 2021).
- Deforestation does affect virus transmission depending on a variety of factors. Future studies will conduct statistical tests to look for correlation, mapping of the land areas, and ties to public health.

## Size of a country does not relate to deforestation occurring

The largest country in South America, Brazil, does not display the largest amount of land being deforested when compared to other smaller countries in terms of area.

- Panel A and B depict Brazil as having the largest area and hence the largest amount of deforestation.
- The countries were then standardized so country area was taken into account (Fig. 2C).
- Panel C depicts how once put in terms of area, Brazil no longer shows the largest amount of deforestation and a much smaller country, Paraguay, does.

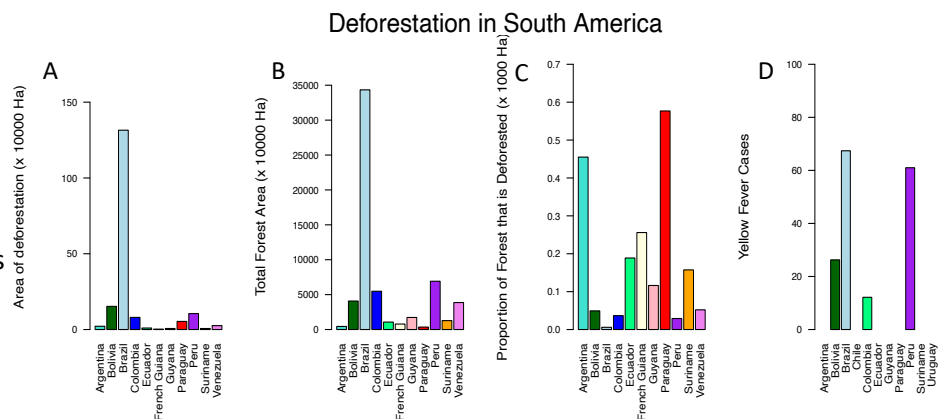


Figure 2. R Programming Deforestation Data shows deforestation area in Panel A, total country area in Panel B, proportion of deforestation as a function of country area in Panel C, and number of Yellow Fever cases in a country per year from 2001-2020.

## Acknowledgements

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